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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/784,151	02/16/2001	Yusuke Kawasaki	108066-00030	2129

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EXAMINER

DAVIS, ZACHARY A

ART UNIT	PAPER NUMBER
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2137

DATE MAILED: 07/28/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/784,151

Applicant(s)

KAWASAKI ET AL.

Examiner

Zachary A Davis

Art Unit

2137

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 February 2001.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-17 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities:

The specification appears to contain minor typographical errors. For example, on page 9, line 8, reference is made to "port 4-2"; however, elsewhere in the specification and in Figure 1, the port is element 2-3. Similarly, on page 9, line 14, reference is made to "discrimination device 2"; whereas, elsewhere in the specification and in Figure 1, the discrimination device is element 3. Further, on page 16, in reference to elements of Figure 7, the reference numbers used in the specification do not appear to match with those used in the Figure, for example those used for the serial I/O ports and the memories. Appropriate correction is required.

Applicant's cooperation is requested in correcting any other errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1, 6, and 11 recite the limitation "from externally". Claim 11 further recites the limitation "to externally". It is not clear whether the limitations are intended to read simply as "externally", or as, for example, "from an external device" or "from an external location" or similar, and "to an external device" or "to an external location". This renders the scope of the claims indefinite. For purposes of interpreting the prior art, the limitations are assumed to read as "externally".

Claims 3, 8, and 11 recite the limitation of an "authentication key that is encrypted the transmission key by a predetermined key". This limitation is generally unclear, which renders the claims indefinite. For purposes of interpreting the prior art, the limitation is assumed to mean an authentication key, which is the result of encrypting a transmission key using a predetermined key.

Further, Claim 3 recites the limitation "said reception signal" in lines 3-4 of the claim. There is insufficient antecedent basis for this limitation in the claim.

Claim 6 recites the limitation "the signal received from the debug terminal" in lines 9-10. There is insufficient antecedent basis for this limitation in the claim.

Claim 8 recites the limitations "the authentication key" in line 2 and "the reception signal" in line 4. There is insufficient antecedent basis for these limitations in the claim.

Claims 10 and 15 recite the limitation "the random numbers" in lines 2-3 of Claim 10 and line 3 of Claim 15. There is insufficient antecedent basis for this limitation in the claim.

Claim 11 recites the limitation "the signal received" in line 6. There is insufficient antecedent basis for this limitation in the claim.

Claim 13 recites the limitation "the received signal" in line 5. There is insufficient antecedent basis for this limitation in the claim.

Claim 16 recites the limitation "encoding by a predetermined key". It is unclear what is encoded by the predetermined key. This renders the claim indefinite. For purposes of interpreting the prior art, it is assumed that the transmission key is encoded by the predetermined key.

Claim 17 recites the limitation "said LSI" in line 6. There is insufficient antecedent basis for this limitation in the claim.

Claims 2, 4, 5, 7, 9, 12, and 14 are rejected due to their dependence on rejected base claims.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yishay et al, US Patent 5704039, in view of Akiyama et al, US Patent 5784464.

In reference to Claim 1, Yishay discloses an IC including an internal circuit and a debug interface circuit (column 6, lines 56-62). Yishay further discloses an authentication circuit that authenticates based on a signal received from a debug terminal in order to enable operation of the debug interface circuit (column 6, lines 6-11). However, Yishay does not explicitly disclose transmitting a transmission key outside of the device, nor does Yishay explicitly disclose using the transmission key with the received signal to authenticate.

Akiyama discloses a method for authenticating a client in which a transmission key is sent outside the authenticating device (column 11, lines 62-67) and authentication is performed by comparing the transmission key and a signal received from outside the authenticating device (column 12, lines 10-29).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device of Yishay by including the authentication method as disclosed by Akiyama, in order to increase the security of the device by making it impossible for a third party to use the authentication and identification data (see Akiyama, column 2, lines 10-16).

In reference to Claim 2, Yishay further discloses a reset signal and enabling operation of the debug interface (column 4, lines 49-52).

In reference to Claims 3 and 5, Akiyama further discloses that an authentication key is generated by encrypting the transmission key, which is a random number, with a

predetermined key (column 12, lines 3-6 and 13-20). Akiyama also discloses that the received signal is compared with the authentication key (column 12, lines 20-23).

Claims 6-8 and 10 are directed to a device including an IC as disclosed in claims 1-3 and 5, respectively, and are rejected by a similar rationale.

Similarly, Claims 11-13 and 15 are directed to a method corresponding substantially to the IC of claims 1-3 and 5, respectively, and are rejected by a similar rationale.

In reference to Claim 16, Akiyama further discloses receiving the transmission key and encrypting the transmission key with a predetermined key (column 12, lines 3-6), and transmitting the encrypted key using a client (column 12, lines 6-9).

In reference to Claim 17, Yishay discloses a debugger for an IC that includes an internal circuit, a debug interface circuit (column 6, lines 56-61), and an authentication circuit (column 6, lines 6-11). Yishay further discloses a debug unit and discrimination device (column 6, lines 59-61). However, Yishay does not disclose that the discrimination device receives a transmission key from the authentication circuit, encrypts the transmission key with a predetermined key, and transmits the encrypted key to the authentication circuit.

Akiyama discloses a method for authenticating a client in which a transmission key is received and encrypted with a predetermined key (column 12, lines 3-6), and further transmitted to an authentication device (column 12, lines 6-9).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device of Yishay by including the authentication method as disclosed by Akiyama, in order to increase the security of the device by making it impossible for a third party to use the authentication and identification data (see Akiyama, column 2, lines 10-16).

6. Claims 4, 9, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yishay in view of Akiyama as applied to claims 1, 6, and 11 above, and further in view of Matsumura et al, US Patent 4908038.

Yishay as modified above discloses everything as applied to Claims 1, 6, and 11 above. However, neither Yishay nor Akiyama teach waiting a specified amount of time before enabling the operation of the debug interface.

Matsumura discloses a high security IC card, which includes a timer circuit that measures a pre-determined elapsed time before returning a processing result (column 3, line 66-column 4, line 5).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the IC, device, and method as taught by Yishay as modified above, in order to prevent unauthorized use by preventing the processing

results or command from being determined by measuring the processing time (see Matsumura, column 2, lines 23-41).

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- a. Baindur et al, US Patent 6073176, discloses a protocol that includes authenticating a client by comparing encrypted random numbers.
- b. Walmsley et al, US Patent 6374354, discloses an authentication protocol that includes encrypting a random number in two chips and comparing the two encrypted numbers.
- c. Laczko, Sr. et al, US Patent 6757829, discloses a debugging system for a secure device, which authenticates based on a signature formed from an encrypted token.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Zachary A Davis whose telephone number is (703) 305-8902. The examiner can normally be reached on weekdays 8:30-6:00, alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew Caldwell can be reached on (703) 306-3036. The fax phone

number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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Matthew Smithers
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PRIMARY EXAMINER
Art Unit 2137